Sampling Procedure for Collection of Benthic Invertebrates for Contaminant Analysis

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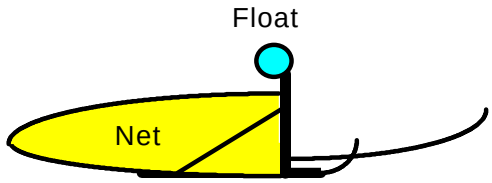
1.0 Benthic Sled Tow

The benthic sled is used to collect benthic invertebrates for contaminant analysis. The sled is fabricated of mild steel and consists of a rectangular frame, to which a net is attached, welded to two runners which slide along the bottom as the sled is towed. A small float is attached to the top of the frame to maintain upright orientation as the sled is deployed. The net has a rectangular opening of dimensions? and a mesh size?

The net should be clean from previous deployment and sample removal. If it is not, clean it using lakewater supplied by a submersible pump.



2.0 Deployment and Collection

The sled is deployed from the stern of the ship from a cable running through a pulley (sheave) on the main A-frame and to the main stern winch. The sled is first attached to the cable on the fantail, with the A-frame in its forwardmost position. The center section of stern guardrail is removed for deployment. After the net is ready, the winch operator lifts the sled from the deck as the A-frame is extended over the water. The pilot is apprised of the progress in deployment over two-way radio. The pilot maintains a steady course with a speed of 2 - 3 knots. This is accomplished by clutching the propellers in and out. The winch operator lowers the sled into the water, preferably during a period of glide, rather than with the propellers engaged, and continues paying out wire. If a tension meter is used, if is often possible to determine when the sled reaches the bottom by an increase in load displayed on the meter's readout. The winch operator continues to pay out cable to a length of between two and three times the depth of the water column. The tow is most often timed from the contact of the sled with the bottom. Tows may be of variable length, but are generally between 10 and 20 minutes long. At completion of the tow, the winch operator retrieves the sled. When the sled is visible at the surface, retrieval is slowed. As the sled is pulled from the water, the A-frame is brought back over the deck. The sled is lowered to the deck.

The benthos collected during the tow will be at the cod end of the net. These are removed with clean utensils (e.g., spatulas, clean spoons, etc.) with the aid of water from squirt bottles or hoses supplied with lakewater. They are placed into a clean pan for later processing. After transfer of the contents of the net to the pan, it is taken to the laboratory where the organisms of interest are picked from the collection using clean forceps. Other techniques may be used to separate taxa within the collection, including stirring, dilution with clean water, etc.